WHAT IS CLAIMED IS:

1. A microstrip-waveguide transition for transmission of electromagnetic energy comprising:

a waveguide having an open end;

a dielectric substrate attached to the open end;

a microstrip probe on the dielectric substrate, wherein a capacitive susceptance across the open end when the open end is exposed to electromagnetic energy; and

means for countering the capacitive susceptance with inductive susceptance.

2. The microstrip-waveguide transition according to claim 1, wherein the dielectric substrate has a first side surface attached to the open end and a second side surface on which the microstrip probe is positioned.

3. The microstrip-waveguide transition according to claim 2, wherein the means for tuning out the capacitive susceptance with inductive susceptance includes at least two separated conductive plates on the first side surface with an opening in between the at least two separated conductive plates.

4. The microstrip-waveguide transition according to claim 2, wherein the means for tuning out the capacitive susceptance with inductive susceptance includes a backshort cap attached to the open end.

5. The microstrip-waveguide transition according to claim 4, wherein the backshort cap is attached to the second side surface with an adhesive to form a hermetic seal between the backshort cap and the dielectric substrate.

6. The microstrip-waveguide transition according to claim 1, wherein the microstrip ground is conductively connected to the waveguide.

7. The microstrip-waveguide transition according to claim 1, wherein the corners of the dielectric substrate and the open end are in alignment.

8. The microstrip-waveguide transition according to claim 1, wherein the dielectric substrate is attached to the open end with a conductive adhesive.

9. The microstrip-waveguide transition according to claim 4, wherein the backshort cap is attached to the open end with a conductive adhesive.

10. The microstrip-waveguide transition according to claim 3, wherein the means for tuning out the capacitive susceptance with inductive susceptance comprises:

a backshort cap arranged at the second side surface; and

the two separated conductive plates on the first side surface.

11. The microstrip-waveguide transition according to claim 10, wherein a first inductive susceptance from the backshort cap is substantially equivalent to a second inductive susceptance from the two separated conductive plates.

12. A microstrip-waveguide transition comprising:

a waveguide having an open end;

a dielectric substrate having a first side surface attached to the open end;

two separated conductive plates on the first side surface; and

a microstrip probe on a second side surface of the dielectric substrate.

13. The microstrip-waveguide transition according to claim 12, wherein corners of the waveguide and the dielectric substrate are in alignment.

14. The microstrip-waveguide transition according to claim 12, comprising:

a backshort cap attached to the second side surface of the dielectric substrate; and

wherein the backshort cap has a central portion at a height in relation to the microstrip probe that is less than 1/2 of a wavelength for a frequency at which the transition operates.

15. The microstrip-waveguide transition according to claim 13, wherein the backshort cap is attached to the open end with a conductive adhesive to form a hermetic seal.

16. The microstrip-waveguide transition according to claim 13, wherein the first side of the dielectric sheet is attached to the open end with a conductive adhesive.

17. A microstrip-waveguide transition comprising:

a waveguide having an open end;

a dielectric substrate having a first side surface attached to the open end;

a microstrip probe on a second side surface of the dielectric substrate; and

a backshort cap attached to the second side surface, wherein the backshort cap has a central portion at a height in relation to the microstrip probe that is less than 1/2 of a wavelength for a frequency at which the transition operates.

18. The microstrip-waveguide transition according to claim 17, comprising:

two separated conductive plates on the first side surface.

19. The microstrip-waveguide transition according to claim 17, wherein the backshort cap is attached to the second side surface with an adhesive to form a hermetic seal between the backshort cap and the dielectric substrate.

20. A microstrip-waveguide transition comprising:

a waveguide having an open end;

a dielectric substrate having a first side surface attached to the open end;

a microstrip probe on a second side surface of the dielectric substrate; and

a backshort cap attached to the second side surface, wherein corners of the waveguide and backshort cap are in alignment and the dielectric sheet is arranged between the waveguide and backshort cap.

21. The microstrip-waveguide transition according to claim 21, comprising:

a means for tuning out capacitive susceptance between the open end and the microstrip probe with inductive susceptance.

22. The microstrip-waveguide transition according to claim 20, comprising:

two separated conductive plates on the first side surface.